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# **Semiotics and semantic: tools for an effective appropriation of information, communication and health technologies**

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***Abstract:*** As Cultural Objects, ICTs belong to the human sphere. This surround is driven by polysemiotics performances (involving many signs systems) which praxeological semantics permits to interpret. The term of Praxeology (or theory of human action) is used so far as it concerns to link principally technical objects to social practices in which they appears. The meaning of these objects is then studied in relation with the actions to which they are associated. In the case of the ICTs, their proposed “coupling” approaches (in particular for the HMIs) lead to a better use and simplify the appropriation process. The study of users’ discourses is very interesting from this point of view, and should lead to formulate recommendations for a more efficient appropriation of the ICTs. In parallel, according to a new idea of design related to electronic objects semiotics often takes place in a plan that relates different disciplines. It offers a common language to all partners and gives tools for a clear depiction of the objects and subjects involved in the interaction and tell how they interact. Example of vocal interfaces is described.

The common sense define semiotics as a theory of signification. Despite the fact that its main analysis models come from linguistics, it devotes itself to all sorts of languages. Semiotics is also an interdisciplinary discipline that deals with anthropology, sociology or philosophy, for example, but its curiosity also challenged it to deal with electronic objects. Today, according to a new idea of design, it often takes place in a plan that relates different disciplines and partners. A new situation occurs because the relationship does not necessary connect a theory to another theory but a theory to a practice. Semiotics is approached for a social application and to give a set of practical rules. Very roughly, one can make out various levels of relation: the first concerns the interaction with the electronic object (corpus level), the second the relation with the partners of the projects (dialogue level) and

the third, the relation which is planned as a purpose (project level). Involved at each stage, semiotics gives tools for description, dialogue and planning.

The object - subject interaction

Focus the subject more precisely at the interaction object - subject, and the way that the user (subject) established a junction with the technological object (the relationship is called a “con-junction”). As Cultural Objects, Information and Communications Technologies belong to the human sphere (concept of Umwelt formulated by Jakob von Uexküll). This surround is composed of polysemiotics performances (involving many signs systems) which praxeological semantics permits to interpret. The term of Praxeology (or theory of human action) is used so far as it concerns to link principally technical objects to social practical in which they are involved.

Referring to the three levels stake in social practices (presentational, semiotic, physical [1]), the object could become a mediator between the user and its environment. The term of “Semiotic mediation” is thusly used.

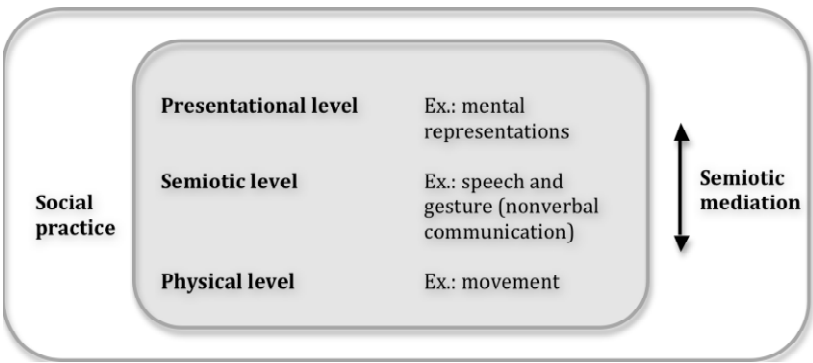


Fig. 1: Practical levels and semiotic mediation

Meaning of objects is so studied closely to the associated action, and more precisely, in case of contemporary communicant objects, with their proposed “coupling” approaches (in particular for the HMI) to enable their use and simplify the appropriation process.

## Making easier the appropriation of communicant objects

In terms of the semiotics of anthropic zones [2], the appropriation designates the way to go through the distal zone to the practical proximal zone. Rastier distinguishes three different zones: that of coincidence (the identity zone); that of adjacency (the proximal zone); that of strangeness (the distal zone). The main break separates the first two zones from the third. In other words, the opposition between identity zone and proximal zone is dominated by the opposition which separates the two zones taken together from the distal zone. Between the three zones, the two borders deserve special attention: the *empirical border* is established between the identity zone and the proximal zone, and the *transcendent border* between the first two zones and the distal zone. Rastier suggests the use of the term **FETISHES** - without any negative connotation - for objects from the empirical border, and **IDOLS** those at the transcendent border [3].

The problematic is to tip the communicating objects from **IDOL** to **FETISH** status.

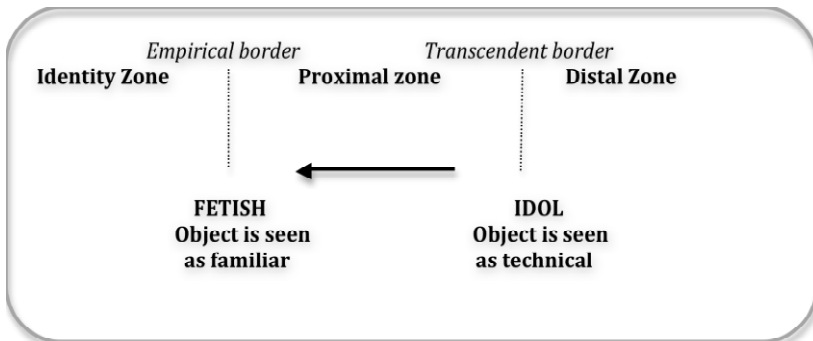


Fig. 2: Anthropic zones and object's status

The object which has the **FETICH** status is seen as "familiar" and that make easier its acception and its daily use. An hypothesis is done that the Voice User Interfaces (VUI) which have recourses to spoken language, make easier the pass from **IDOL** to **FETISH**, in comparison of the Graphical User Interfaces (GUI). *The Recognition of Continuously Spoken Sentences* hold an important position in the way that it allows the user to

address oneself from a natural way to the system without any preliminary specific forming learned to use the aforementioned system.

The recourse of the *natural dialogue* (unlimited) begs the vexed interrogation about the semantic interpretation, and underlines the role of the situational context. Indeed, communication is not reduced only to information transmission. Moreover, the "speech recognition" is not equals to the "interpretation" which requires a truly semantic and pragmatic treatment. A research project could be initiate by associating the linguists, semioticians and technologists: Predict functional Voice User Interfaces which take in account of attempts and the use of languages (lexicon, syntax, semantics, pragmatics, etc).

A preliminary study of the user's discourses (evaluations, enunciative positions, social doxa...) is very interesting from this point of view, and should lead to formulate recommendations for a more efficient appropriation of the ICTs, and a real implication of the persons.

These polysemiotics parameters permit to emphasize some specific technological solutions that are not widely used today and in particular all the HMIs based on the vocal and/or the gesture approaches for which the interaction modes are kept natural for the persons (for example, a vocal interface that would be transparently melt in the housing environment and following the context of the person to be assisted. Obviously, this can also be applied to health technology appropriation or to solutions based upon an important validation of acts in time and space. Tactile technologies can then be emphasised. The approach on how to consider the best parameter for the design thus directly condition the GUI design, the signage and colours of the interfaces signal and reminders, and, more importantly the modes of interactions with the end-user.

## References

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